A Sparsity Factor for South Dakota School Districts

- **The first consideration**—students per square mile.
  - Data Required.
    - Student numbers.
    - Area of the school district.
  - What do we do with the data?
    - Calculate students per square mile.
    - Convert students per square mile into some kind of sparsity value.
    - Convert sparsity value into financial aid for sparse school districts.

- **Other Considerations**. These do not enter into the calculation of sparsity, but serve as criteria school districts must meet in order to qualify for sparsity.
  - Limit sparsity to school districts with a minimum number of students per square mile. SB198 limits sparsity to school districts with less than 0.5 students per square mile.
  - Limit sparsity to school districts with fewer students. SB198 limits sparsity to school districts with fewer than 500 students.
  - Limit sparsity to school districts with a minimum size land mass. SB198 limits sparsity to school districts with an area of at least 400 square miles.
  - Limit sparsity to school districts whose high school is a minimum distance from the nearest high school. SB198 limits sparsity to school districts whose high school is at least 15 miles from the nearest high school.
  - Limit sparsity to school districts that levy the maximum tax rate for the school district general fund.

- Limit sparsity to school districts whose general fund balance does not exceed a certain percentage of its general fund expenditures. SB198 limits the general fund balance percentage at 30%.
- Limit sparsity to school districts that operate a high school.

- SB198 sparsity calculation, an example—the Lemmon school district.
  - The Lemmon school district meets all the qualifying criteria.
  - The Lemmon school district has 328.7 students, and a land mass of 1240 square miles.
  - According to the directions in SB198:
    - (a) divide the number of students by the area in square miles--this calculation yields 0.265 students per square miles.
    - (b) multiply the quotient obtained by calculation (a) times -0.125—this yields -0.033.
    - (c) add 0.0625 to the product obtained by calculation (b)—this yields 0.29.
    - (d) multiply the sum obtained by calculation (c) times the number of students (328.7)—this yields 9.652.
    - (e) multiply the product obtained by calculation (d) times the per student allocation in the state aid to education formula ($4,364 for FY2007)—this yields $42,122—the amount of sparsity aid the Lemmon school district stands to receive.

- **<u>The mathematics of SB198</u>**.
  - Like the small school factor, the sparsity calculations in SB198 create additional ADM for purposes of distribution of state aid to education. The students per square mile for school districts eligible for sparsity

ranges for 0.5 to 0.1. At 0.5 students per square mile, the sparsity adjustment is 0.0%. At 0.1 students per square mile, the sparsity adjustment is 5%. This number is similar to the 20% adjustment in the small school factor.

- **Looking for Natural Breaks in the Numbers**.
  - When the qualifiers in the sparsity formula such as area in square miles, student numbers, and distance from the nearest high school are established, consideration should be given so that a school district does not narrowly miss qualifying for sparsity because of one of the qualifiers. For example, under SB198, Bennett County would not qualify because its enrollment is 510—10 students over the 500 student threshold. Likewise, the Hyde and Wessington Springs school districts do not qualify because their high school is too close to the nearest high school—by less than one-half mile.
  - Also, for purposes of analysis, it should be assumed that in order to qualify for sparsity, school district will tax at the maximum levy, and reduce fund balances.

- **Qualifying districts**.
  - Without regard to tax levies and fund balances, the following 25 districts qualify for sparsity under SB198.
    - Bison 52-1
    - Dupree 64-2
    - Eagle Butte 20-1
    - Edgemont 23-1
    - Edmunds Central 22-5
    - Eureka 44-1
    - Faith 46-2

        - Faulkton Area 24-3
        - Haakon 27-1
        - Harding County 31-1
        - Hoven 53-2
        - Isabel 20-2
        - Jones County 37-3
        - Kadoka 35-1
        - Lemmon 52-2
        - Leola 44-2
        - Lyman 42-1
        - McIntosh 15-1
        - Newell 09-2
        - Oelrichs 23-3
        - Selby 62-5
        - Timber Lake 20-3
        - Wall 51-5
        - White River 47-1
    - 13 districts fail to qualify for sparsity based on only one of the qualifying criteria. Of those, 6 could be described as "near misses."
        - Bennett County, 510 students.
        - Miller, 523 students.
        - Doland, 393 square miles.
        - Midland, 399.6 square miles—but Midland is reorganizing so will not figure into the sparsity calculations in the future.
        - The Hyde school district high school is 14.48 miles from the nearest high school.
        - The Wessington Springs high school is 14.67 miles from the nearest high school.
    - Increasing the qualifying ADM amount to 525, reducing the area requirement to 390 square miles, and reducing the distance between high schools requirement to 14 miles adds the above 6 schools without adding any additional "near misses."

- **The SB198 sparsity floor**.
  - The intent of SB198 is to provide a minimum sparsity factor to sparse schools between 100 and 275 adjusted ADM (small school factor). In terms of unadjusted ADM, this translates to between 83.3 and 234.2 ADM. In this instance, so long as a school district was in the 100-275 Adjusted ADM range, it was guaranteed 275 ADM for purposes of state aid to education/sparsity.
  - For purposes of the analysis, a similar sparsity floor will be established for schools in the 75-240 ADM range, provided they have fewer than 0.275 students per square mile. However, instead of the $250,000 cap, the difference between 240 and the actual ADM is multiplied by ¼ of the per student allocation. 7 schools meet these criteria, they are:
    - Bison 52-1
    - Edgemont 23-1
    - Faith 46-2
    - Hoven 53-2
    - Isabel 20-2
    - Jones County 37-3
    - McIntosh 15-1.

- **The Spreadsheet**.
  - The factors used in the spreadsheet are based on the philosophy of SB198 with consideration given to keeping the price tag at approximately $1,500,000—which is what SB198 appropriates for sparsity.
  - None of the numbers are cast in stone.